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IMBALANCE IN DEMAND AND SUPPLY OF HUMAN RESOURCES IN PRIVATE TECHNICAL INSTITUTIONS – SOME OD INTERVENTION ISSUES IN INSTITUTIONAL REFORMS IN INDIA

Arindam Chatterjee
Manager – Human Resources
Sobhasaria Group of Institutions
NH-11, Gokulpura, P.O.- Bajajgram, Sikar, Rajasthan-332021, India
a.hrm.chatterjee@gmail.com

Abstract— Technical Institutions in private higher education sector is facing some catastrophic hints in last few years regarding the compliance of supply of desired level of human resources both in the areas of teachers, competent outputs in consonance with Graduate Attributes and demand of expected number of enrolments of students. Although, however, the TEQIP, NBA, NAAC, AICTE, UGC and other leading International Accreditation agencies have pointed out both the aforesaid stakeholders as the primary and key change agents towards systematic Institutional academic and extra-academic reforms as a part of OD intervention. This research study, therefore, is focusing on the up-gradation of minimum statutory parameters , XIIth five year plan indicators, massive quantitative expansion plan to cater the need of higher education by MHRD and thus a total Nationwide demand and supply imbalance as an obvious socio-economic compulsion for the systemic trap in a large democracy like India.
Key Words- Demand, Supply, Imbalance, Reforms, Systemic trap, Intervention, Technical Institutions.

1. INTRODUCTION

Higher level Technical Education , especially Under Graduate Engineering Education, is presumed as a vital components of macro level Human Resource Development with tremendous opportunity for adding qualitative value to GDPs and above all for upbringing the quality of human life. As a result of the efforts made through different committees, commissions during the successive Five Year Plans in the past on the development of quality technical education, the expansion of the said areas in the country has been phenomenal during the past six decades. With the time, with globalization and liberalization, the Government policy has also turned towards International benchmarks of quality aspects of education to validate the Indian degrees and overall education and make them acceptable to most of the leading countries of the world. To integrate and control all the factors and huge expansions earlier in Government and later in Private sector through an apex body , the MHRD was empowered and took the charge through its specialized autonomous statutory bodies by framing Legislations, Acts, Regulations, interim amendments and collaborations, as the situation demands, to cater the need. Thus, in this stage, minimum regulatory norms take a precision and being driven by enhanced demand of Technical Education, the past few plans somehow eyed on revolutionary expansion through entrusting the Private sectors to participate actively in this new arena of business investments and unknowingly caught in this federal systemic trap by a cumulative demand and supply gap within a decade. Neither the quality objectives are being complied nor the number games in terms of employability are fulfilled. This study will take a critical stock of different variables of this sensitive but tactical process in a composed way.

2. DEFINITIONS

Technical Education: "Means programmes of Education, Research and Training in Engineering-Technology, Architecture, Town Planning, Management, Pharmacy and Applied Arts and Crafts and such other programme or areas as the Central Government may, in consultation with the council, by notification in the Official Gazette declare" [6].

Institutional Reforms: Consolidated Innovative and Planned changes in the areas of Curricular activity, Performance evaluation, Faculty appraisal, Continuing education, Accreditation of UG & PG programmes, delegation of autonomous power and Internal Revenue Generation(IRG) are cumulatively be called as Institutional Reforms.

OD Intervention: These are composed and planned activities used by an individual or in groups by the functioneries of a client to enhance the system of their societal work performance in Organizational level.

Programme Outcome: Programme Outcomes are a combination of directives that opined what students are desired to learn and capable to perform after completion of study.

Graduate Attributes: These are a bunch of critically measurable outcomes which may be considered as the parts resulting of the students ability to grasp efficiency and competence to perform at required position.

3. SCOPES OF STUDY

For all developments made throughout the past 67 years after India's independence, higher education faces strong challenges in the critical areas of Access, Equity and Quality. The National Technical learning pattern has divulged an outstanding hike on standards in the last decade for reaching the present position in World education framework of Technical education. The statistics of Technical institutions in terms of numbers had increased at a Compound Annual Growth Rate (CAGR) of 11%, however, the UG had jumped at a CAGR of 6%. Nation wide. The level of Gross Enrolment Ratio (GER) presently stands at about 13.8% where the Western parts are holding the GER of more than 25%. Although, however, the GER is continues to trail significantly than the International achievements and standards. The MHRD is subsequently fixed a benchmark of 30% Gross Enrolment Ratio by mission 2020 which may apparently be perceived impossible at this present rate of improvement. The scope and challenges of the Private sectors within the penny-wise-pound-foolish approval and affiliation norms for introduction and extension of new Institution and courses by minimizing gaps pertaining to prescribed Graduate Attributes, academic and extra-academic reforms and creation of more GER and employable outputs are the very pertinent, realistic and strategic scope of study within the given framework. The commendation and recommendation part by optimum consideration of the economic, social and human resources are also to be made to make the review complete.

4. BRIEF HISTORY OF INDIAN ENGINEERINGTECHNICAL EDUCATION IN INDIA:

To look into a crucial and very important societal issue like Technical education in one of the largest democracy as India, an in-depth past issues are preferably to be known for better insights and understanding. In historical perspectives, it is found that the establishment of Technical Establishment was laid in India almost in the same time as in Europe. To develop semi-skilled manpower with working knowledge of topography of Physical resources through survey, the British Government established an Institute of Survey at Madras (known as Chennai) in 1794. From different articles it is found that on around 1825, two other similar technical institutions were set up in Calcutta (known as Kolkata) and Bombay (known as Mumbai) with prominent linkages with Ordinance factories. Later, in 1842, an Industrial school was established in Guindy, Madras and in 1854 in Poona. Engineering College in real sense was established first in Roorkee followed by 3 other colleges in West Bengal, Bombay and Madras in 1856. Thereafter, another important Institute was established in the name of College of Engineering under the auspices of National Council of Education at Jadavpur, Calcutta in 1908. Although, the concept of participation and contribution of private sector in establishing premier education institutions came with the devout of Visionary leaders like Sir Jamshedji Tata and Pandit Madan Mohan Malviya with the establishments of Indian Institute of Science at Bangalore in 1909 and Benaras Hindu University at Varanasi in 1917 respectively. After few years, with Sir Ardeshir's plan, the Department of Scientific and Industrial Research was set up in 1945 which will later be recognized as Centre for Scientific and Industrial Research(CSIR). Afterwards, vide the advice and recommendations of Mr. N. R. Sarkar, two national advisory organizations were formed to advise the "Indian Government" at that juncture. By following the models of Massachussets Institute of Technology, USA, in 1950, the first Indian Institute of Technology started its operation in Kharagpur, West Bengal. In between 1956 and 1961, four other IITs were set up in Kanpur, Bombay, Madras and Delhi as Institute of National Importance under the Act of Parliament. Many other Craftsman Training Institutes(CTIs), Government Universities, Engineering Colleges, few Research Institutions were established with the recommendations of AICTE to validate the scope of further expansions with entrance of Private players in the Technical Education Sector from the later part of 1960s. The concept of Deemed Universities, Regional Engineering Colleges, National Institute of Technology, other Institutes on Information Technology, Statistics, Technical Teachers Training Institute and private Universities came afterwards.

5. LITERATURE REVIEW

National Planning Commission(XIIth Five year Plan 2012-2017): Plan documents found it logical to improvise and exhibit a profound, pragmatic, growth-oriented, quality-controlled Technical Education system to cater the multi-level needs of the society. They indirectly accepted that they need to accelerate towards bridging the quality gaps at the earliest. Framing the base of such a result driven Technical education requires clear understanding of the pros and cons of the existing system for proper incorporating of diagnostic measures of this huge educational compulsions systematically.

The Higher Education Research Bill, 2011: It strongly recommends for conferment of autonomy of Technical Colleges as an unavoidable means of reforms for creative adoption of tailor-made, stakeholders demand-based superior and innovative teaching learning and research system in consonance to the International benchmarks of education. The bill factually demonstrated the need of Institutional Autonomy and focused to get the feasible solutions.

National Knowledge Commision(NKC),2005: Commission criticized the Higher and Technical Education in their version that the System of constituent and University affiliated Colleges providing UG engineering education , might be worthy at long ago. Presently it is neither sufficient nor recommended to be delivered for imparting quality education. The same is neither easy to manage nor acting as a friendly system to revise. It reflects on the onerous burden on Universities, especially the state Technical Universities, for regulating admission, setting curricula, and conduct examinations for hundreds of affiliated Institutions in the state. NKC

also checked the veracity of the University affiliating structure which are resisting the Institutions to adopt, innovate and evolve out of statutory compulsion. Commission sarcastically noted a 'Convoy Problem' for the teachers and students of good Colleges and pointed out their compulsions which hinders their phase wise growth. It is also proposed to make the course and examination pattern flexible considering the large number of dispersions in performance at schools before enrolment in the Technical Institutions.

Yash Pal Committee Report, 2009: Report carefully advices that in a large county like India, the customization of demand-driven education system can only be successful. It refers with practical data that approximately 8 lacs of graduate students needs almost 80000 learned faculty members on a yearly basis. The commission refers a chicken and egg problem to show the direction for managing the demand and supply. Presently IITs, NITs, Universities and other entrusted degree awarding Institutions grant around two thousand Doctoral qualifications in the field of Technical education and they are reportedly not of same quality. Here is strongly established the demand and supply issues in tertiary education in India,

NASSCOM News Room, Raman. N.: Mr. Raman reported that in spite of having rich quality domain, the MHRD was constrained to slash 25,000(approx) intakes from the engineering Institutes of the Country as a regulatory and quality controlling measure. The tremendous shortage of both qualified PG and Ph.D faculty members for complying maintaining the minimum supply guidelines of a Technical Institution invited the harsh decision by the apex body.

6. IMBALANCE ISSUES IN DEMAND, SUPPLY AND QUANTITATIVE AND QUALITATIVE EXPANSION IN THE POST INDEPENDENCE STAGE – A SEQUEL TO THE RECENT PROBLEM

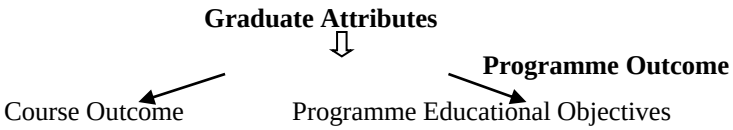
The first scientific demand and supply issues of trained manpower was analyzed through the 'Scientific Manpower Committee' under the Chairmanship of Dr. Shanti Swarup Bhatnagar in the year 1947. As the then technical Institutions were constituted as a tailor-made system particularly designed to engage the skilled manpower for Industrial and Socio-economic development, it is necessary to strike a balance between demand and supply as primary issues. Earlier, in absence of a Manpower Information System, there had been imbalances although, however, the nature was little different from that of recent times. In one hand, there was unemployment creeping up in large numbers, the shortage in skilled manpower were also there in many streams on the other side. To counter this depleted facilitative arrangement, a reliable manpower system was developed by Institute of Applied Manpower Research by the Government thereafter. AICTE also revised their policy by diversifying the existing courses and starting up new courses as a diagnostic measure. In the post Independence era, a new problem arose to match quantity and quality of technical education as per International benchmarks. However, exploring all options and remembering acute shortage of funds, Government of India opts for quantitative expansion of Technical education to generate skilled manpower. This compulsion and again this systemic trap, although served the purpose well in the initial stage due to limited demand , but however, later on it had done a serious slow poisoning in the sector of elementary research and development. However, for the said reason, in spite of having so many Commission and Committees, there was always a lack of emphasis on Qualitative development of Technical Education by appropriate authorities. Only stop gap arrangements were made, time to time, without considering it a real core sector both by AICTE as well as Government of India.

7. ESTABLISHMENT OF REGULATORY AND FUNDING AUTHORITIES IN INDIA(TABLE I)

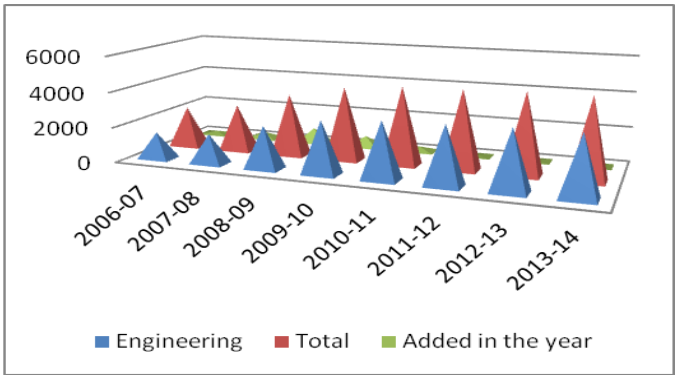
Name of the Authority*	Year of Establishment	Key reasons
MHRD	1985	School Education, Literacy and Higher Education
AICTE	1945	Planning , Coordination and Development of Technical Education
UGC	1956	Funding, Coordination, Determination, Maintenance of University Education
NBA	1994	Earlier for periodic Evaluation for Programme, Now for granting Accreditation as per International Standards
NAAC	1994	Independent National Accreditation body to address the Issues of National Policy on Education and the plan of Action[1]
TEQIP	1992	Upscale and support the effort of Govt. of India to enhance the quality of education
PCI	1948	Regulate the Pharmacy Education, Profession and practice in India

*"(*MHRD-Ministry of Human Resource Development, AICTE-All India Council for Technical Education, UGC-University Grants Commission, NBA-National Board of Accreditation, NAAC- National Assessment and Accreditation Council, TEQIP-Technical Education Quality Improvement Programme, , PCI-Pharmacy Council of India)"*[1]

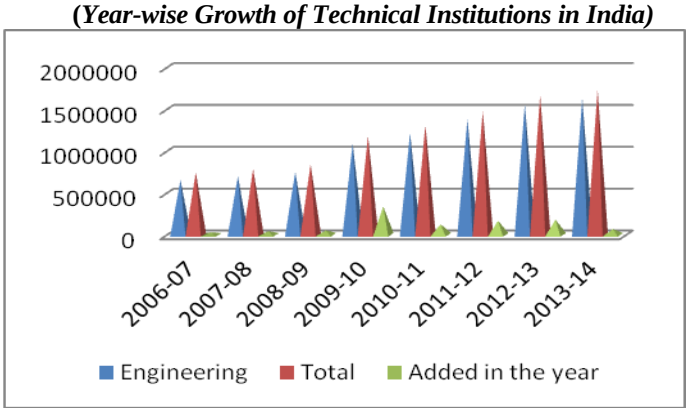
Mismatch of Graduate Attributes and Programme outcome Analysis in Private Technical Education: The concept is "No Outcome Based Education(OBE)= No Accreditation, No Accreditation= No Reforms". In 12 Graduate attributes, the Washington Accord, in India through National Board of Accreditation(NBA), has circulated individually assessable outcomes as an indicative component of Graduate's potential and competence. However, even after NBA being a signatory member of Washington Accord in the year 2014, the following problems are still deemed to be prominent, evident and persistent is especially in Affiliated Private Technical Institutions, both aided and unaided, in India –i) Programme Educational Objectives(PEOs), linked with Programme Outcomes(POs) should reflect the professional and career accomplishments of the Technical graduates after 4-5 yrs of their graduation, however, in practice, the focus has not yet been shifted to the outcome based education. The information through provided by bulk of the Institutions are either incorrect or manipulated. ii) The adaptation to this new paradigm shift in the higher Technical Education are very poor in Institutional level. iii) Although the NBA has done considerable awareness towards the acceptance and training of this new OBE system, still there are no such initiative, blueprint or deadline for real achievement of the system for all the Technical Educations in India are followed or adopted neither by Technical Universities nor by AICTE. The National goal can only be attained by all-round implement of the system without exception. iii) The skills gap in the Coordinator levels, both in Programmes and Courses, are debarring the awareness to be spread amongst the students in way of a 'cause – effect' relationships and as such, in most of the cases, they are neither informed not concerned about this very pertinent issue. iv)With the full understanding of the requirements for monitoring the Continuous improvements even in Tier II cases, none of the accreditation attributes ate directly recommending the ERP implementation in the Institutions and thus, in this process inducting huge data error and manipulation which invariably diluting the overall objective of the efforts.



8. GROWTH OF TECHNICAL INSTITUTIONS AND INTAKES IN UNDERGRADUATE LEVEL IN INDIA



(Year-wise Growth of Technical Institutions in India)



(Year-wise Growth of Intake in Technical Institutionsin India)

9. LACK OF CORRELATION IN THE STATUTORY NORMS – CATALYTIC EFFECT ON INSTITUTIONAL IMBALANCE(TABLE II)

Authority	OBE	Inst. Reforms	Autonomy	Research Quality
TEQIP	No	Yes	Yes	Yes
NBA	Yes	No	No	No
NAAC	No	No	No	Yes
AICTE	No	No	No	No

10. OPERATIONAL AND FUNCTIONAL SYMPTOMS IN PRIVATE TECHNICAL EDUCATIONAL SYSTEM IN INDIA FELT IN RECENT AND DIFFERENT TIMES IN THE POST INDEPENDENT ERA

- The continuous tension with AICTE and Private Technical Institutions/ Employer Organizations are empirical facts of resistance to change and evident statistics of non-compliance which lead to legal cases at district , high courts and even to the Supreme Court . The pending cases alone are more than 500 in numbers in the country.
- In XIIth five year plan, the Govt has taken a look on the % of quantitative expansions in various methods of XIth five year plan. However, the actual attainments of the target, are still a critical question to be answered. Moreover, the % of new enrolments in Ph.D and PG Technical level are not considered to be adhered to the employability reports of various agencies during the XIth plan and thus, invariably not adequate and demand driven in real sense .
- In India, the Technical Education is moving at a negative direction. While the Govt. has introduces lot of developmental regimes and bills like The Foreign University Bill, the National Accreditation and Regulatory Authority Bill, almost all of them are stuck into the systemic trap and may up-bring the education, if passed.
- In the post independent era, since 1974-75, the Private Technical Institution has the 'recognition' of a 'Capitation Fee Institutions' or 'Non-Grant Institutions'. While it is indicative that the private players are taking the education as a sophisticated profit making investments and the Governments are however too reluctant even in this XIIth plan by spending a mere 4.96% (approx) funds of total investment on higher education as a budgetary support to private Infrastructure, Academics and Research developments.
- In 2014, Aspiring Mind's Employability study commends that only 17% of the Engineering Graduates are fit to get IT sector job across the Nation, although IT sector is a major sponge of absorbing engineering graduates. The systemic data analysis was a result of cluster sample survey with 50000 students and 250 approx engineering colleges from different region and development sectors.
- The result of AICTE's clueless support for mushrooming of the Technical Institutions, especially engineering Institutions, they were forced to cut 25000 seats in the last year.
- More astonishingly, the report shows that in most of the states 50% engineering seats remained vacant even after repeated counselling. Some colleges are running without any new admission in UP, Bihar, MP, Tamil Nadu etc. Although, the statutory authorities demand to have compliance against 1:15 and 1:12 on approved intake thus the imbalance comes with a big bang.

11. DIAGNOSIS, ACTION PLANNING WITH FEASIBLE ALTERNATIVES

- None of the commission had probably looked upon this basic issues that one cannot control a diversified matter if the same are not monitored and traced in a planned way. It recommended after thorough scrutiny of the Technical educational imbalance, its pros and cons from a OD approach that likewise PAN card, Voter ID card number (Visa number for foreign nationals) will separately be linked as unique ID to track the Faculty and Students career progression through a unique portal of MHRD.
- ERP system thus will be cloud based and mandatory and free for access by Statutory authorities as and when required. The Institute should upload the PF statement, Duly signed bank statement and TDS return in the portal to validate the faculty members authenticity. Failing which, no faculty will be considered under the roll of he Institution.
- All inspections should mandatorily be a 'Surprise Inspection' and minimum for a period of 3days to get the actual picture of the Institutions.
- AICTE should have a policy (to be implemented by the affiliating University) that an institution cannot continue a course with less than 15% intake in a given year. Those students will automatically be diverted to other affiliated colleges as per University's choice and the course will be automatically closed till further approval for opening o a new course.
- IITs, IIMs, NITs, Reputed Deemed Universities and other Institute's of National Importance, will be Instructed to make a consortium with prescribed number of Technical Institutions purely for the purpose of training and quality enhancement issues.
- All feedbacks, API based appraisals should subject to be a clause that all faculty members should complete Ph.D enrolments within 3 years of starting their career as a faculty member. They must publish 2 conference or a Journal paper in a given year. Those will be treated as career progression parameter and hence be linked to the unique ID.
- Central Governments and State governments must raise their funds and bid for running the Institutes under PPP mode as a controlling measure.
- Like mandatory CSR activity, Navaratna, Miniratna and other listed Industries and Industrial bodies like FICCI, ASSOCHAM will be directed to be in close contact with Technical Institutions to bridge the skill gap and resolve the employability issue.
- Accreditation should be made mandatory for all Technical Institutions. Failing which, no further extension should be allowed as a regulatory measure. This also recommended to club NBA and NAAC as a single regulatory body or to entirely diversify them to resist the Institutions to get the advantage of 'either-or' in a given period.

- To comply with the recommendations of almost all National Commissions on Education, an Autonomy bill shall be raised in the parliament in order to provide autonomy to the renowned Government and Private Institutions who are in existence for minimum of 10 years and those will be operational under the strict monitoring of the Affiliating university and State Directorate.
- A body on 'Quality Control' will be established under direct control of AICTE Regional Committee and like NBA, they will train the member of the expert committee and conduct surprise inspection as and when required. Thu a 3 phase compact regulatory role shall be introduced by MHRD, AICTE and Affiliating University (for Affiliated Institution) or through a bi-partite committee of University-DTE for Autonomous Institutions.

12. INTERNAL OD BASED INITIATION OF REFORMS MECHANISM

To consider a careful stock of the various reforms variables, both dependent and independent, we may choose 'Comprehensive OD Intervention 'technique to managing the change in Institutional level with a purpose to ensure to i) Build a common picture of the present status quo ii) Intention of leaders to together on Organizations interest as in the private sectors, apart from trustees, seniors officers are highly volatile. iii) Agreement on the issues of shouldering the forthcoming responsibilities iv) Commitments in the Organizational level about performing the responsibilities about creation of awareness, knowledge gathering at individual and collective level. Repeated 'Strategic Change' events are necessary to break the ice, telling the symptoms, getting the acceptability before diagnosing the problem leading to a prognosis stage, creating further respect for organizational value and cultures. Revisit the Organizational strategy etc. The 'Actions Research' and 'Appreciative inquiry', at times, may be highly successful to direct them towards preferred future.

13. CONCLUSION

The apex regulatory and facilitating department of Central Government, the MHRD, in this new plan, is facing an ambivalence of the discrete demand and dearth of quality supply with few stumbling steps towards in incorporating International standards in Indian Technical Education system. The steps are undoubtedly positive though, however, are a big step jump from sub-standard to world class education. In this large democratic system, the history witnessed a continuous emphasis of Trail and Error methods to reach the phase wise outcome. The XIIth plan is not an exception. In spite of being the major player in National Technical Education arena, the private Technical Institutions are again a neglected and a matter of least priority in the gross budgetary concern of MHRD. Even in this macro-level convoluted torsions, this study may show some positive directions to the policy makers for interim amendments or future drafting of Technical education plans in India.

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